Regional Innovation Strategies Applied in Slovak Republic

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Abstract

Economic growth is one of the ultimate goals of any economic system. The relationship between the development of the regions and economic growth of the state is a subject of long-time debates. The regional development is influenced by many factors that act differently depending on the region. The economic environment is characterized by non-linear turbulent changes and the regions face everyday challenges. Each region has its own competitive advantages that can be used for regional development and thus to reducing regional disparities. Regions must be able to adapt to new challenges and new economic environment through its policies and strategies. Regions can use different types of assistance for their development, e.g. in the form of financial instruments, innovative activities, innovative strategies or new policies geared to promoting regional development. Regional innovation strategies are systematic, goal-oriented exercises carried out by regional partnerships. The goal of research is to analyse actual position of the Slovak republic and its regions in regional innovation performance. A wide range of scientific methods and procedures were used in processing research. The first chapter focuses on the definition of terms such as regional development, regional disparity, cohesion policy and regional innovation strategy. Results part consists of the key findings and is prepared by using a comparative and historical descriptive analysis.

Keywords: competitiveness, development, innovative cities, knowledge transfer, region, regional innovation performance, regional innovation strategy.
JEL classification: O18, R11, R58

Introduction

Regional innovation systems can be simply represented as the interaction of three basic systems - (1) science, research, technology and development on the one hand, (2) the industrial sector on the other hand, (3) government system consisting of a plane region, state and European Union (EU). The development of a regional innovation system is the result of the interaction of these basic systems. The importance of science, development, and technology development is obvious without complex analyses. Technological development is not possible without the development of science and research. On the other hand, technology is an important element of economic growth and makes a significant contribution to job creation, industry development, the establishment of new businesses and the economic growth of the region and the state. The problem is insufficient funding of science and research, % share of the state budget. The application of EU cohesion policy and the use of funds through funds, grants is one of the solutions for implementing innovation strategies.

Theoretical Background

Both American and European economists have long been involved in the economic development of the regions. Uneven development of states, regions and cities is causing macroeconomic problems not only at regional, national, or international level. According to Skokan (Stejskal et al., 2009), regional development is characterized by complex processes going on in the complex system of the regions. To influence and manage these processes, a system approach is needed. Stough and Roberts (Stejskal et al., 2009) also addressed the issue of defining regional development. According to the authors, regional development is the application of processes and resources available in the region resulting in sustainable development and the desired economic performance for the region that meets the expectations of both businesses, residents and non-residents.

Regional disparities are a key issue in ensuring regional development. The term regional disparities means regional differences in the economic, social and ecological level of the regions under review, which cause uneven development of the EU territory. In this context, it is necessary to emphasize the need to differentiate the notion of disparity and diversity. Diversity is a positive phenomenon, the diversity of individual regions, the strong region of the region. Regions, thanks to some of its strengths and using all their strengths are becoming more interesting, they have a stronger position in terms of competitiveness and sustainability of regional development. Diversity may stem from historical development, and depend on each region How can this my competitive advantage to benefit. Disparity is an undesirable difference between regions, which, by its existence and subsequent deepening, causes the development and economic growth of the state to which the region belongs. Disparity is the weak side of the region that needs to be addressed and mitigating its impact on development. According to Výrostová (2010), disparities are defined as: "the consequence of regional development, when regional developments in specific historical conditions may lead to uneven development of the regions, resulting in a series of inequalities: social, economic, cultural, infrastructure, inequality in living conditions, level, etc., which can lead to regional polarization." The author defines disparities as types of inequality in society. Their existence prevents harmonious, competitive growth. Disparities may arise for various reasons, whether natural or human. Most often, they arise from a polarization process, an uneven distribution of welfare and production factors in the state.

The European Union supports the development of its regions through a defined policy. Regional development, the removal of regional disparities is realized through the chosen policy. Regional development policy has evolved over many years. Regional policy dealt with the development of the regions as the first targeted policy. The objectives and policy objectives have been changed, and so the policy has been renamed to structural policy. Structural policy has gradually evolved and changed when direction and focus have changed again. Cohesion policy has begun to be used to ensure regional development. Since the mid-1990s, the European Commission has been supporting regional development by stimulating innovation processes in the regions. Innovative processes include regional development strategies and thoroughly developed methodology.

Cohesion policy operates through structural, regional and social policies aimed at balancing the resulting economic and social disparities within the EU regions. Together with the Cohesion Policy, whose activities are directed towards states and the mitigation of differences between states. The current policy objectives is directed to regional, agricultural and social sectors, which are supported by innovation policy, which constitutes its substance. Innovation policy brings the latest technology

in areas such as environmental protection, research and development and energy, which is part of the common wealth of the EU. These areas have emerged as necessary, in particular, in linking cohesion policy to the growth model resulting from the adopted Europe 2020 Strategy. The policy supports the objectives set out in it, with a clear-cut investment strategy based on a multi-level governance system. According to Cihelková (2010), the Europe 2020 Strategy is a defining strategy for cohesion policy, as it basically defines the concept of the EU economy as well as the interdependence of many key elements to just undergoing cohesion. "The Europe 2020 vision brings a vision for the European social market economy over the next 10 years, consisting of three interlinked and mutually reinforcing priority areas. They are an intelligent growth-based economy based on knowledge and innovation, sustainable growth supporting a low carbon, competitive and resource-less economy and inclusive growth, supporting the economy with high employment and social and territorial cohesion (Cihelková, 2010). The EU has an important role to play in restructuring the economic sectors where cohesion policy seems to be the most appropriate, given the objectives that define it. Cohesion policy has an impact on the unfavorable, rapidly growing international competition, affected by the economic sectors. Its significance grew in times of financial crisis from the economic recession of 2008.

Various authors and institutions have dealt with the issue of regional innovation strategies (RIS). For example, the OECD defines RIS as a systematic, goal-oriented activity that forms part of regional innovation policies. Meiron Thomas explored the relationship between economic development and small and medium-sized enterprises, with the aim of innovation as well. For this reason, it is possible to identify and find in his work also the definition of RIS. Using definition of Meirion Thomas, RIS is a method for developing regional policies in the area of innovation.

Methodology

A wide range of scientific methods and procedures were used in processing research. The analysis (casual and content analysis) is used in the first part of paper, so the first chapter focuses on the definition (Mitková, 2010) of terms such as regional development, regional disparity, cohesion policy and regional innovation strategy. We analyzed scientific publications and scientific articles, papers by various authors (e.g. Dudic et al., 2016, 2017; Smoleň et al., 2017; Šlahor et al., 2016; Pawera et al., 2011; Olšavský, 2017; Stejskal et al., 2009; Cihelková, 2010; OECD, 2017). Methodology contains of identification of research assumptions, as well as methods and sources used in the paper (OECD, European Commission). Results part consists of the main findings and is prepared by using a comparative analysis.

Results

The regional development of Slovakia is significantly affected by the EU regional policy. The accession of Slovakia to EU in 2004 put forward the regional dimension of social and economic processes more intensively than before. For the programme period of years 2007 – 2013 the National Strategic Reference Framework was drawn up as a basic document for drawing of financial resources from the structural funds and the Cohesion Fund of EU. The basis of an effective regional policy is an analysis of relevant factors of development, i.e. identification of key factors that have important, positive and stimulating effects on regional development. Factors of regional development vary in time, which is related to the level of knowledge of

socio-economic processes. On the other hand, factors of regional development are subject to changes due to the development of structures and their interaction.

The EU's cohesion policy is currently in the new programming period 2014-2020. All financial activities of the previous programming period 2007 - 2013 (taking into account also rules n + 2, n + 3) have already been completed. Due this reason, it is possible to start analysing the impacts of cohesion policy, realized projects, and utilized funds on the development of the regions.

One of the options for mentioned impact analysis can be the use of the European Innovation Scoreboard (EIA), and more especially, the Regional Innovation Scoreboard (RIS) that is a regional extension of EIS. It serves for evaluation of the innovation performance of European regions on a limited number of indicators.
According to European Commission (2017a): "EIS provides a comparative assessment of the performance of innovation systems at the country level of the EU Member States, other European countries and regional neighbours. Innovation performance is measured using a composite indicator – the Summary Innovation Index – that summarises the performance based on 27 indicators. These indicators are grouped into four main types – Framework conditions, Investments, Innovation activities, and Impacts – and 10 innovation dimensions. The RIS 2017 covers 220 regions across 22 EU countries, Norway, Serbia, and Switzerland. In addition, Cyprus, Estonia, Latvia, Lithuania, Luxembourg, and Malta are included at country level."

Europe's regions are divided into four innovation performance groups according to their performance on the Regional Innovation Index relative to that of the EU. (European Commission, 2017b) Cohesion policy and innovation policy are very closely interlinked, so it was interesting to analyse developments in Slovakia using the RIS 2017.

By using the RIS 2017 (European Commission, 2017b) we can observe the performance in 2017 relative to that of the EU in 2011. As we mentioned, the impact of cohesion policy can be observed in innovation process of the country. Using the NUTS classification, Slovakia as a country represents NUTS 1 region which is classified as a Moderate Innovator. It is then divided into four NUTS 2 regions: Bratislava region (SK01 – Capital City), Západné Slovensko (SK02 – Western Slovakia), Stredné Slovensko (SK03 – Central Slovakia) and Východné Slovensko (SK04 – Eastern Slovakia). The capital region (SK01) is a Strong Innovator and the most innovative region in Slovakia. Eastern Slovakia (SK04) is a Moderate + Innovator, Western Slovakia (SK02) and Central Slovakia (SK03) are Moderate Innovators. Regional Innovation Index (RII) in 2011 and in 2017 were (European Commission, 2017c):

- SK01 (in 2011) : 0.357 → SK01 (in 2017) : 0.420 → the improvement by +0.063;
- SK02 (in 2011) : 0.250 → SK02 (in 2017) : 0.281 → the improvement by +0.031;
- SK03 (in 2011) : 0.259 → SK03 (in 2017) : 0.267 → the improvement by +0.008;
- SK04 (in 2011) : 0.232 → SK04 (in 2017) : 0.290 → the improvement by +0.058.

The problem of Slovakia's innovative growth is a big difference between the Capital city (SK01) and another part of Slovakia. Eastern Slovakia has a high share of innovation potential growth (compare 2011 and 2017), but attention should be focused on Central Slovakia (the difference between 2011 and 2017 is only 0.008).

Bratislava region is a Strong Innovator, and innovation performance has increased significantly over time. The innovation performance can be observed by using the improved RII between years 2011-2017. It is possibly to observe the innovation performance of Bratislava region during the time by using the Table 1. Bratislava region was listed as the region with the largest difference between national and regional measurement. (European Commission, 2017c) Table 1 shows the Normalised

Scores per Indicator and Relative Results of Bratislava region compared to the Slovakia (as a country) and to the European Union.

Table 1
Normalised Scores per Indicator and Relative Results – Bratislava Region (SK01)

	Data	Normalised score	Relative to	
			SK	EU
Tertiary education	46.2	**0.680**	182	**123**
Lifelong learning	**6.9**	**0.346**	194	**74**
International scientific co-publications	2152	0.617	225	**148**
Most-cited scientific publications	5.4	0.388	103	**71**
R&D expenditures public sector	1.01	0.638	134	**117**
R&D expenditures business sector	0.47	0.257	126	**56**
Non-R&D innovation expenditures	+/-	0.382	+/-	**+/-**
Product/process innovations	+/-	0.268	+/-	**+/-**
Marketing/ org. innovations	+/-	0.267	+/-	**+/-**
SMEs innovating in-house	+/-	0.255	+/-	**+/-**
Innovative SMEs collaborating	+/-	0.377	+/-	**+/-**
Public-private co-publications	126.4	0.341	244	**115**
EPO patent applications	0.66	0.145	115	**37**
Trademark applications	4.46	0.342	124	**87**
Design applications	0.53	0.358	101	**69**
Employment MHT manuf. / KIS services	25.5	0.914	146	**171**
Exports of MHT manufacturing	65.3	0.779	109	**123**
Sales new-to-market / firm innovations	+/-	0.376	+/-	**+/-**
Average score	--	0.429	--	**--**
Country EIS-RIS correction factor	--	0.979	--	**--**
Regional Innovation Index 2017	--	0.420	--	**--**
RII 2017 (same year)	--	--	151.7	**104.1**
RII 2017 (cf. to EU 2011)	--	--	--	**106.9**
Regional Innovation Index 2011	--	0.357	--	**--**
RII 2011 (same year)	--	--	94.4	**92.6**
RII – change between 2011 and 2017	**--**	**14.3**	**--**	**--**

Note: +/- Relative-to-EU scores are not shown as these would allow recalculating confidential regional CIS data.
Source: European Commission, 2017c

The Table 2 shows data highlighting possible structural differences in Slovakia. For instance, the Bratislava region (SK01) is more densely populated, with higher employment shares in services and public administration, and much higher than average GDP per capita. Western Slovakia (SK02) is a Moderate Innovator, and innovation performance has increased over time. For instance, the Western Slovakia has higher than average employment shares in manufacturing and agriculture and lower than average share in public administration. Central Slovakia (SK03) is a Moderate Innovator, and innovation performance has remained stable over time. For instance, Central Slovakia is less urban, with higher employment share in public administration, and lower than average GDP per capita. Eastern Slovakia (SK04) is a Moderate + Innovator, and innovation performance has increased significantly over time. For instance, the region has higher employment shares in utilities & construction and public administration, and considerably lower than average GDP per capita. (European Commission, 2017c) Once again, we can observe the big difference / disparity between the Bratislava region (SK01) and the rest of Slovakia (SK02, SK03,

SK04). For comparison, we use the indicator – GDP per capita in Purchasing Power Standards (PPS). GDP per capita in PPS were in 2014:

- SK01: 51 700 (GDP per capita growth 2010-2014: 2.85)
- SK02: 20200 (GDP per capita growth 2010-2014: 3.50)
- SK03: 16800 (GDP per capita growth 2010-2014: 2.53)
- SK04: 14700 (GDP per capita growth 2010-2014: 3.32)
- Slovakia: 21300 ((GDP per capita growth 2010-2014: 2.90)
- EU28: 27600 (GDP per capita growth 2010-2014: 2.00)

Comparing the mentioned data, we can conclude that the Bratislava region achieves much higher GDP per capita in PPS than the EU28 average. However, it is important to compare the development over the reference period. In the monitored period 2010-2014, all regions of Slovakia (NUTS2) recorded growth in the monitored indicator; the growth was faster in SK02, SK04 than in SK01. The problem is again region SK03, where growth was the lowest in all monitored regions.

Table 2
Data Highlighting Possible Structural Differences – Slovakia

	SK01	SK02	SK03	SK04	SK	EU28
Share of employment in:						
Agriculture & Mining (A-B)	1.2	4.5	4.2	3.7	3.7	5.1
Manufacturing (C)	12.7	29.1	25.6	21.4	24.0	15.5
Utilities & Construction (D-F)	8.0	11.8	12.7	13.8	12.0	8.5
Services (G-N)	67.5	48.5	47.6	51.7	51.7	63.2
Public administration (O-U)	10.6	6.2	10.0	9.4	8.6	7.1
Average employed persons per enterprises (firm size), 2013-2014	5.1	3.5	3.2	3.1	3.7	5.4
GDP per capita (PPS), 2014	51700	20200	16800	14700	21300	27600
GDP per capita growth (PPS), 2010-2014	2.85	3.50	2.53	3.32	2.90	2.00
Population density, 2015	307	122	83	103	111	117
Urbanisation, 2015	80.4	54.3	54.1	56.1	58.2	74.1
Population size, 2016 (000s)	630	1830	1340	1620	5430	510280

Source: European Commission, 2017c

Conclusion

Regional innovation strategies, their implementation, are largely dependent on the possibility of financing individual direct measures from the Structural Funds. On the one hand, this may constitute a heavy dependence on EU funds to external sources, on the other hand, it is very necessary, probably the only possibility to implement effective innovation strategy in Slovakia. The Regional Innovation Scoreboard 2017 was used to analyse developments in the Slovak Republic. From the data in Table 2, it is clear that all four regions (SK01, SK02, SK03, SK04) have developed. But there are still large regional disparities in Slovakia between the Bratislava region (SK01) and the other three regions, but most to the SK03. Only a targeted innovation strategy will make it possible to achieve even growth and regional development. This growth must be sustainable.

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